

# ABSTRACT

Fluorine-containing synthetic quartz glass is produced  
5 by feeding silica-forming material, hydrogen, and oxygen  
gases from a burner to a reaction zone, flame hydrolyzing  
the silica-forming material in the reaction zone to form  
particles of silica, depositing the silica particles on a  
rotatable substrate in the reaction zone to form a porous  
10 silica matrix, and heating and vitrifying the porous silica  
matrix in a fluorine compound gas-containing atmosphere.  
During formation of the porous silica matrix, the angle  
between the center axes of the silica matrix and the silica-  
forming reactant flame from the burner is adjusted to 90-  
15 120° so that the porous silica matrix has a density of 0.1-  
1.0 g/cm<sup>3</sup> with a narrow distribution within 0.1 g/cm<sup>3</sup>. The  
resulting quartz glass has a high transmittance to light in  
the vacuum ultraviolet region below 200 nm.